WEB Application Usability
Interface Standards and Guidelines

*Issued by the ETWA Web and E-Government Domain
Team for the State of Connecticut*

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1. Document Control

1.1 Authorship

This document was created for designers and developers of Web applications.

The participating contributing authors were the members of the EWTA Web / e-Government Domain Team and the Connecticut Portal Advisory Group - Accessibility Committee.

1.2 Revision History

Date	Issue	Description	Author
07/10/2002	1.0	Initial Publication	Ed Fitch, Chair the EWTA Web / e-Government Domain Team
09/04/2003	1.03	Revised Version for Publication; incorporates guidelines for Applications;	Ed Fitch, Chair the EWTA Web / e-Government Domain Team

2. Objectives and Scope

This document is the standard by which the graphical user interface development shall be performed for Connecticut web applications. This document promotes the current "look and feel" of the Connecticut State Portal.

3.   Electronic Brand / Identity

3.1   Background and Goals

The logos, color scheme and basic look and feel must be approved prior to the creation of the application. Approval and recommendations will be the responsibility of the agency Webmaster. (webmaster@ct.gov) A standard page layout and navigation method must be maintained throughout all agency application pages. Developers will use the given logos and portal site headers provided by the webmaster to design the creation of all pages within the transaction pages. All other images should be consistent with the current look and feel as defined in this document. For an example see a copy of the DMV transaction page that implement the common look and feel (see Figure below)

Figure 1 Example of common look and feel

4.   Client Target Specifications

4.1   Target Browsers

The proposed web site will meet the recommended browser specifications in the EWTA Web and E-Government Domain Architecture Document.

4.2   Target Display Resolution

Most web sites today are designed for computer displays that are set for a resolution of at least 800x600 pixels. This resolution is also better for low vision users.

Figure 1. Example of Common Look and Feel.

4.3   Target Color Depth

Most graphic design for web sites can be created using the Web Safe color palette that consists of 216 colors recognized by both PCs and Macs using a color depth of 256 colors (or higher). Choice of color should take in consideration the capability of the target client workstation. Note: If you are unsure of this topic then perform a search on Web Safe Color Palette. Web Safe means that the color choice will be displayed as consistently as possible on display media (Macs, PC compatibles, PDAs display color differently). Unless you're using Web Safe colors, what you're seeing on your computer is not necessarily what the people who visit your page will see. This is very important should your transaction use color as instruction.

4.4   Alternative Browsing

In order to comply with the State Web Site Accessibility policy (see Section 5 below), all web pages must be tested using a screen reader, such as Freedom Scientific's JAWS, GWMicros' Window-Eyes (of particular interest for developing web pages for PeopleSoft based applications) or IBM's Home Page Reader. Developers may wish to test using several screen readers. All pages must pass Bobby Priority 1 regardless of performance in a screen reader..

4.5   Graphical and HTML Optimizations for Performance

 Specific application and client/server performance is not addressed in the Standards document. Since the final html and graphics will be served up dynamically via an application server, static prototypes cannot reflect or gage actual performance numbers. Given this, site designers should design for bare minimum file sizes through **clean code and image compression techniques:**

- All graphics must be optimized for the best possible performance prior to exporting and publishing. All image tags in the html code must include Width and Height attributes.

- The use of large images and multimedia should be limited to Log-in and Main pages.

- Graphics used primarily as navigational aids throughout the application, should, where possible load once and be re-used on subsequent pages. Once past the Main menu of a particular module, sub-screens should never be loading more than 2 or 3 new graphics for the user.

HTML code should follow a stacked table pattern using only minimum table nesting, and only where absolutely necessary. The cleaner the code, the better the performance.

4.6   Site Map

A text site map is mandatory.

4.7   Date fields

Date fields will not be abbreviated – minimal standard mm/dd/yyyy, more acceptable December 2, 1999.

5.   Accessibility

All web sites must conform to the State of Connecticut Web Site Accessibility policy. This policy may be found at http://www.cmac.state.ct.us/access/policies/accesspolicy40.html. Or search on accessibiity in the CT.GOV portal site.

Accessibility issues to be addressed include, but are not limited to, the following:

5.1   Provide Text Alternatives

Use the "Alt=" Attribute to provide an alternative text description of non-text elements within a page.

5.2   Moving or Blinking Content

Do not use Moving or Blinking content.

5.3   Identify Data Tables

Use TH to identify column headers and TD to identify data cells respectively. Furthermore, a Caption and a table Summary to describe the contents of a data table **can** be used but it **is not necessary** for correct interpretation by of contemporary screen readers (*e.g.,* JAWS, Windows-Eye or IBM Home Page Reader).

5.4   Scripts, Applets, and Programmatic Objects

Use equivalent information in an alternative format on your web page if using scripts, applets, or programmatic objects. Unsigned Applets are not to be used.

5.5   BOBBY Compliance

Web authors should use the latest version of Bobby Worldwide to validate ALL html templates for accessibility prior to any core development. Once the site is in BETA test, the final dynamic pages should be tested again with Bobby Worldwide. The objective of using the tool is to correct all problems relating to meeting Priority 1 guidelines and be made aware of any lower Priority standards the site may not be meeting.

5.6   Blind/Low Vision Accessibility

All web pages must be tested using a screen reader, such as Freedom Scientific's JAWS, GWMicros' Window-Eyes (of particular interest for developing web pages for PeopleSoft based applications) or IBM's Home Page Reader. Developers may wish to test using several screen readers. All pages must pass Bobby Priority 1 regardless of performance in a screen reader..

Typically if all of the BOBBY Priority 1 accessibility guidelines have been met, the screens will read well in a screen reader, but there are subtle design enhancements to ensure screens read better than others did. The basic requirements are as follows.

1. Provide descriptive ALT Attributes of supporting images. For example if there is a header graphic of people driving in a car, the ALT tag should read ALT="people driving in a blue car while waving". If the graphic is for interface support only, like a spacer or a rounded corner in a table for example, it is permissible to use ALT=" ". In this instance the screen reader will ignore the graphic and the page will still meet BOBBY Priority 1 Accessibility Guidelines because a text alternative was provided.

2. Describe buttons or icons by their function, as e.g. ALT="search button". This indicates to the user that this is a navigational graphic.

3. Avoid pop-up windows in the main body of text. Screen readers will read the information in a pop-up window but it is easier for users of screen readers to navigate within the same browser window. If it is necessary to load a pop-up, make sure to include a prominent button to close that window.

4. Test each template on a PC that has reader software and a compatible soundcard, that warns the user and listen to the results first hand.

5.7   Designing for Color Blind Users

The general guidelines fore producing pages that work well for colorblind users are as follows.

- For content areas, we recommend the use of black text on white background.
- Although there are various types of color blindness, 90% of all colorblind people have difficulty distinguishing between red and green. Purple, Grey and Brown are confusing for selected color blinds persons.
- Most colorblind people can see shades of blue and yellow. Consider using blues and yellows rather than reds and greens in your design.
- Avoid using color as a visual cue. If you do use color as a visual cue, make sure that you have provided adequate alternate cues.
  a. Make sure there is strong contrast between the background and foreground text or graphics.
  b. Use bright colors to minimize problems for those that have color weakness.
  c. Always use the ALT attribute in image tags. See Section 5.1
  d. If you use style sheets to remove the underlining from links, provide some type of visual clue, such as arrows or icons, to indicate that the text is a link.
  e. Carefully consider color use in charts or graphs. If the colors can't be distinguished from each other, the graph will be useless. Try using safe colors or, even better, alternate methods of reading the graph, such as text values or the application of a different texture to each color.
  f. Run screenshots and images through the Vischeck Color Blindness Simulator at http://www.vischeck.com. The Vischeck utility simulates how your images will look to people with various types of color deficiency.

5.8   References for Standards Organizations and other Resources

http://www.w3.org

http://www.w3.org/TR/2003/WD-WCAG20-20030624

http://bobby.watchfire.com/bobby/html/en/index.jsp (publishers of Bobby)

http://bobby.watchfire.com/bobby/html/en/pricing.jsp (to buy Bobby)

http://www.freedomscientific.com (publishers of JAWS)

http://www.gwmicro.com/windoweyes/ (publishers of Window-Eyes 4.21)

http://www-3.ibm.com/able/solution_offerings/hpr.html (publishers of Home Page Reader 3.0)

6.   Technical Specifications

6.1   Use of Links on data entry pages

Pages requiring the entry of data should not allow the user to exit the page until data entry actions have been completed. Unpredictable results can occur. Popup windows are acceptable as long as they follow accessibility guidelines.

6.2   HTML specifications

The HTML coding for the site will be created using HTML or XHTML (WC3 specifications), in conformance with the State of Connecticut Web Site Accessibility Policy.

6.3   Tables

Use Percentages rather than Absolute Pixel size when using the Table "width" attribute for Master tables. It is preferable to use Pixel widths for nested form tables.

6.4   Help and FAQ

Text boxes (pop-ups) may be employed but they must be accessible to impaired users.

Graphic of text is acceptable in navigational aids such as headers, buttons and tabs.

6.5   Frames

Do not use Frames. Server side include files are technically suitable for accomplishing one shared header, navigation and footer file etc.

6.6   Scroll Bars

Vertical scrolling is acceptable. Avoid the need for horizontal scrolling.

6.7   Use of META and TITLE tags

Title tags should be used to inform users where they are located in the application. It is not necessary to populate META tags for Search engine priority etc.

6.8   Error Messages and Handling

Error messages can be rendered real-time through the browser by refreshing a current screen with error messages. They will provide assistance to the user concerning the problem and advise what to do about it, if anything.

Server-side validation – the data is passed to the application server, then the application reloads the same screen with error messages.

Note: Do not rely on color to get user attention.

6.9   Official State forms

All Official forms used in the production of a web site must be approved by the Agency Records Management Officer and assigned a form number as appropriate.

6.10   External Links

All external links, including image files, will be pre-approved by the agency webmaster and follow these guidelines.

7. Page Architecture - Navigation & Layout

7.1 Banner

The Banner should remain intact through the entire application and be identical to the portal and agency webmaster specified banner.

7.2 Portal Banner Bar

If links are not used then the bar should be blank. Portal banner bar links will not be available to a transaction user when engaged in a data entry page.

7.3 Color, Font and Picture Usage in the Navigation Bars

Notice how Vector type icons are presented within the Tab Menus. Icons should not be over-implemented into the site and content navigational areas.
How do readers handle icons?

Nothing said about Color and nothing about Fonts.

7.4 Page Layout in 800x600

Standard screens will snap to 800 x 600 screen resolution without the horizontal scroll bar.

Figure 2 Well composed page layout for a 800x600 screen.

7.5   Header

The header on each page will consist of the standard CT.gov content and layout, which includes the CT.gov logo, Agency Name, and Agency Logo, as demonstrated below in this page header for the Department of Motor Vehicles.

Figure 3 Example of a page header.

Within the application, the application name may replace the agency name. The agency webmaster must be consulted for this design consideration.

7.6   Footer

The footer on each page will consist of…

State of Connecticut Disclaimer and Privacy Policy   Copyright 2003 State of Connecticut

Website Accessibility Policy applies

7.7   Bread Crumbs option

All tools should give the user their relative location within a given process at all times. The breadcrumb technique will be a static, non-navigation visual clue that shows the user's hierarchic position within the application. A sample is provided below:

7.8   Sample Buttons

Back, continue and other functional buttons will be applied to the site as needed. A sample is provided below:

7.9   Typography Web site

Linked Cascading Style Sheets (CSS) should be used to manage typography settings throughout the site.

8.   Graphics

8.1   Design considerations

Site design will make use of few graphic images in order to provide for better performance with slower Internet connections and to make pages easier to understand by users with readers. Images are used mostly for navigational components. Larger graphics and multimedia should be isolated to the Login screen and Main menu.

8.2   JPEG vs. GIF

JPEG format should be used for photos. GIF will be used for line drawings and buttons.

9.   Graphics File Location

The images will be located in a web site/images folder.

10.   Name Conventions for Web Pages

10.1   File names

All letters will use lower case. Spaces are not permitted. If spacing effect is required an underscore should be used to denote a space.

10.2   Bookmarks names

Names will consist of lowercase letters, 8 characters or less and contain no imbedded spaces

10.3   Image names

Names should follow the present scheme: "typeofimage_imagedesc" etc.

Examples:

buttons use" btn_login.gif", etc

headers use "header_adminbar.gif"

Graphics or pictures use graphic_sunroad.jpg, etc.

11.   Templates

11.1   Application and Portal templates

For those applications considering using a portal approach, the following page templates are offered as a guideline. Contact the Connecticut Portal Advisory Group for details and recommendations for use of the official Connecticut State portal. webmaster@ct.gov

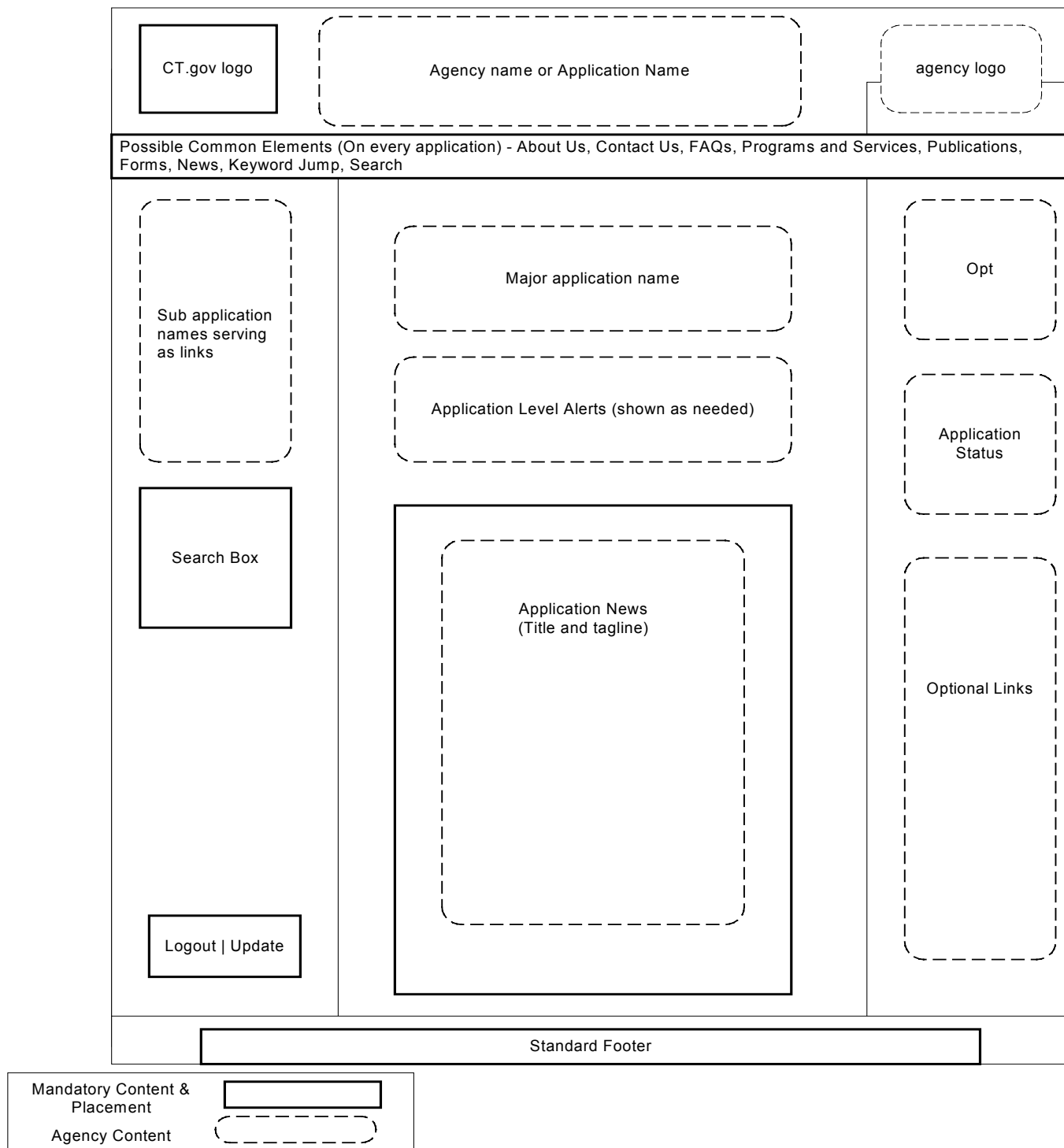| CT.gov logo | Agency name or Application Name | agency logo |

Possible Common Elements (On every application) - About Us, Contact Us, FAQs, Programs and Services, Publications, Forms, News, Keyword Jump, Search

Sub application names serving as links

Major application name

Application Level Alerts (shown as needed)

Opt

Application Status

Search Box

Application News
(Title and tagline)

Optional Links

Logout | Update

Standard Footer

| Mandatory Content & Placement | |
| Agency Content | |

Figure 4 Generic portal template.

| CT.gov logo | Application Name | agency logo |

Blank unused
_____
Inquiry pages - About Us, Contact Us, Programs and Services, Publications, Forms, News, Keyword Jump, Search
_____
Update, create, delete pages - breadcrumb bar

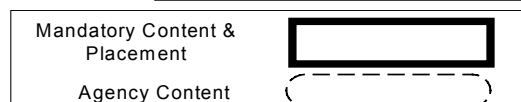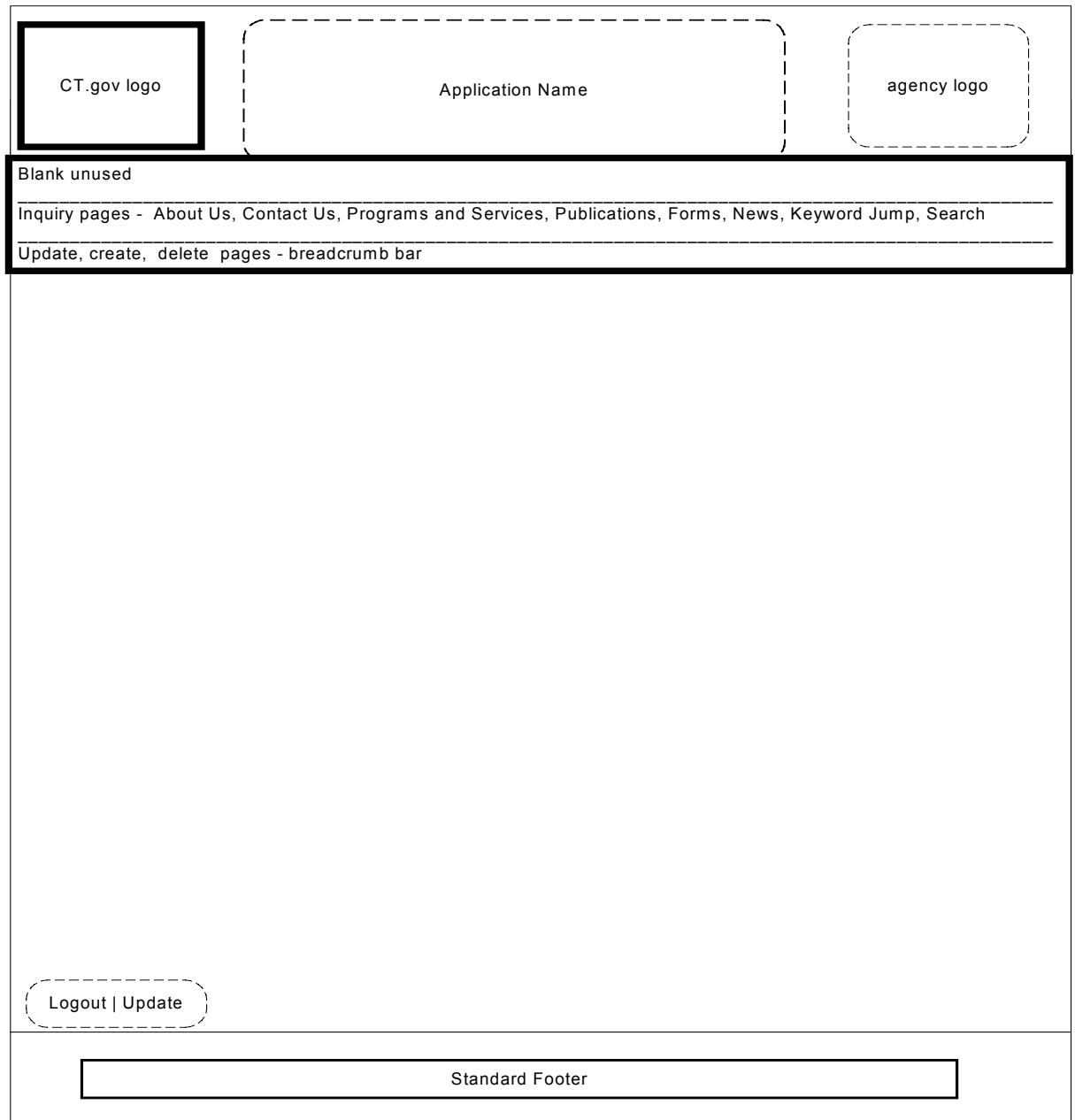Logout | Update

Standard Footer

| Mandatory Content & Placement | |
| Agency Content | |

Figure 5 Generic application template.